IN THE CLAIMS:

1. (CURRENTLY AMENDED) A method for modifying packet header data transferred from a source to an output buffer~~destination~~, the method comprising the steps of:

reading one or more instructions, by a processor, each instruction indicating an operation to modify the packet header data;

generating, in response to the one or more instructions, one or more commands wherein each command is associated with the operation to modify the packet header data;

placing the one or more commands in a data structure; ~~holding the one or more commands and not performing the operations associated with the one or more commands until initiation of~~

initiating a transfer of the packet header data from the source to the output buffer~~destination~~; and

performing, by a device operating independently from the processor, the operations associated with the one or more commands contained in the data structure, to modify the packet header data as directed by the one or more commands while the packet header data is being transferred from the source to the output buffer~~destination~~.

2. (CURRENTLY AMENDED) The method as defined in claim 1 further comprising the step of:

acquiring the packet header data from the source.

3. (CURRENTLY AMENDED) The method as defined in claim 2 further comprising the steps of:

generating a bit mask associated with the acquired packet header data; and

transferring the bit mask and the acquired packet header data to the output buffer~~destination~~.

4. (PREVIOUSLY PRESENTED) The method as defined in claim 2 wherein the data structure comprises one or more entries wherein each entry is associated with a command and the entry contains information associated with a range of addresses and an operation code that are associated with the command.

5. (CURRENTLY AMENDED) The method as defined in claim 4 further comprising the step of:

    searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired <u>packet header</u> data;

    if a matching entry is found, determining if an operation code contained in the matching entry indicates a delete data operation; and

    if so, generating a delete bit mask that represents data that is deleted in the ac-quired <u>packet header</u> data and transferring the delete bit mask and the acquired <u>packet header</u> data to the <u>output buffer</u>~~destination~~.

6. (CURRENTLY AMENDED) The method as defined in claim 4 comprising the steps of:

    searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired <u>packet header</u> data;

    if a matching entry is found, determining if an operation code contained in a matching entry indicates an insert data operation; and if so,

        a) generating a leading bit mask that represents leading data contained in the acquired <u>packet header</u> data,

        b) transferring the leading bit mask and the acquired <u>packet header</u> data to the <u>output buffer</u>~~destination~~,

        c) acquiring insert data,

        d) generating an insert data bit mask that represents the insert data,

14   e) transferring the insert data bit mask and the insert data to the <u>output</u>

15 <u>buffer</u><s>destination</s>,

16   f) generating a lagging bit mask that represents lagging data contained in

17 the acquired <u>packet header</u> data, and

18   g) transferring the lagging bit mask and the acquired <u>packet header</u> data to

19 the <u>output buffer</u><s>destination</s>.

1   7. (PREVIOUSLY PRESENTED) The method as defined in claim 4 wherein each entry

2   contains a length and a source address associated with the command.

1   8. (CURRENTLY AMENDED) The method as defined in claim 7 comprising the step

2   of:

3   searching the data structure for an entry containing information associated with a

4   range of addresses specified by the combination of the length and the source address con-

5   tained in the entry that matches a range of addresses associated with the acquired <u>packet</u>

6   <u>header</u> data.

1   9. (PREVIOUSLY PRESENTED) The method as defined in claim 1 wherein the data

2   structure is a table.

1   10. (PREVIOUSLY PRESENTED) The method as defined in claim 1 comprising the

2   step of:

3   clearing the data structure.

1   11. (PREVIOUSLY PRESENTED) The method as defined in claim 1 wherein the source

2   is a context memory.

1   12. (CANCELLED)

1   13. (CURRENTLY AMENDED) A system comprising:

2   a context memory configured to hold <u>packet header </u>data;

3   a data structure configured to hold one or more commands;

4   a processor configured to read one or more instructions, each instruction indicat-

5   ing an operation to modify the data, and in response generate one or more commands to

6   modify the data, the processor further configured to place the one or more commands in

7   the data structure;

8   an output buffer; and

9   a data mover coupled to the context memory and the output buffer and configured

10   to<u>,</u> ~~not perform the operations associated with the one or more commands until transfer of~~

11   ~~the data from the context memory to the output buffer has been initiated, and~~ upon initia-

12   tion of a transfer <u>of the packet header data from the context memory to the output buffer,</u>

13   ~~to~~ acquire the <u>packet header </u>data from the context memory, <u>and </u>modify the <u>packet header</u>

14   data as directed by the one or more commands contained in the data structure, while the

15   <u>packet header </u>data is being transferred from the context memory to the output buffer.

1   14. (PREVIOUSLY PRESENTED) The system as defined in claim 13 wherein the data

2   structure is a table.

1   15. (PREVIOUSLY PRESENTED) The system as defined in claim 13 wherein the data

2   structure comprises one or more entries wherein each entry is associated with a command

3   and the entry contains information associated with a range of addresses and an operation

4   code that are associated with the command.

1   16. (CURRENTLY AMENDED) The system as defined in claim 15 wherein the data

2   mover is configured to search the data structure for an entry containing information asso-

3   ciated with a range of addresses that matches a range of addresses associated with the ac-

4   quired <u>packet header </u>data and if a matching entry is found, determine if the operation

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5   code contained in the matching entry indicates a delete data operation and, if so, generate

6   a delete bit mask that represents data that is deleted in the acquired <u>packet header</u> data.

1   17. (CURRENTLY AMENDED) The system as defined in claim 15 wherein the data

2   mover is configured to search the data structure for an entry containing information asso-

3   ciated with a range of addresses that matches a range of addresses associated with the ac-

4   quired <u>packet header</u> data and if a matching entry is found, determine if the operation

5   code contained in the matching entry indicates an insert data operation and if so, (i) gen-

6   erate a leading bit mask that represents leading data contained in the acquired <u>packet</u>

7   <u>header</u> data, (ii) transfer the leading bit mask and acquired <u>packet header</u> data to the <s>des-</s>

8   <s>tination</s><u>output buffer</u>, (iii) acquire insert data, (iv) generate an insert data bit mask that

9   represents the insert data, (v) transfer the insert data bit mask and insert data to the <s>desti-</s>

10   <s>nation</s><u>output buffer</u>, (vi) generate a lagging bit mask that represents lagging data con-

11   tained in the acquired <u>packet header</u> data, and (vii) transfer the lagging bit mask and the

12   acquired <u>packet header</u> data to the <s>destination</s><u>output buffer</u>.

1   18. (PREVIOUSLY PRESENTED) The system as defined in claim 15 wherein each en-

2   try in the data structure contains a length and a source address associated with the com-

3   mand.

1   19. (CURRENTLY AMENDED) The system as defined in claim 18 wherein the data

2   mover is configured to search the data structure for an entry containing information asso-

3   ciated with a range of addresses specified by the combination of the length and the source

4   address contained in the entry that matches a range of addresses associated with the ac-

5   quired <u>packet header</u> data.

1   20. (CURRENTLY AMENDED) The system as defined in claim 13 wherein the data

2   mover is configured to generate a bit mask associated with the <u>packet header</u> data and

3   transfer the bit mask to the output buffer.

1   21. (CURRENTLY AMENDED) The system as defined in claim 20 wherein the output

2   buffer comprises:

3   data steering logic configured to use the bit mask to identify valid data contained

4   in the transferred packet header data;

5   a working register coupled to the data steering logic and configured to hold the

6   valid packet header data transferred from the data steering logic; and

7   an output queue coupled to the working register and configured to hold the valid

8   packet header data transferred from the working register.

1   22. (CURRENTLY AMENDED) An apparatus for modifying packet header data trans-

2   ferred from a source to a ~~destination~~output buffer, the apparatus comprising:

3   means for reading one or more instructions, each instruction indicating an opera-

4   tion to modify the packet header data;

5   means for generating, in response to the one or more instruction, one or more

6   commands wherein each command is associated with an operation to modify the packet

7   header data;

8   means for placing the one or more commands in a data structure;

9   means for holding the one or more commands and not performing the operations

10   associated with the one or more commands until initiation of a transfer of the packet

11   header data from the source to the ~~destination~~output buffer; and

12   means for performing, independent from the means for generating, the operations

13   associated with the one or more commands contained in the data structure, to modify the

14   data as directed by the one or more commands while the packet header data is being

15   transferred from the source to the ~~destination~~output buffer.

1   23. (CURRENTLY AMENDED) The apparatus as defined in claim 22 comprising:

2   means for acquiring the packet header data from the source.

24. (CURRENTLY AMENDED) The apparatus as defined in claim 23 comprising:

means for generating a bit mask associated with the acquired ~~packet header~~ data;

and

transferring the bit mask and the acquired ~~packet header~~ data to the ~~destina-~~

~~tion~~output buffer.

25. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 23 wherein the

data structure comprises one or more entries wherein each entry is associated with a

command and the entry contains information associated with a range of addresses and an

operation code that are associated with the command.

26. (CURRENTLY AMENDED)   The apparatus as defined in claim 25 comprising:

means for searching the data structure for an entry containing information associ-

ated with a range of addresses that matches a range of addresses associated with the ac-

quired ~~packet header~~ data;

means for determining if the operation code contained in a matching entry indi-

cates a delete data operation; and

means for generating a delete bit mask that represents data that is deleted in the

acquired ~~packet header~~ data and transferring the delete bit mask and the acquired ~~packet~~

~~header~~ data to the ~~destination~~output buffer, if the operation code in the matching entry

indicates a delete data operation.

27. (CURRENTLY AMENDED) The apparatus as defined in claim 25 comprising:

means for searching the data structure for an entry containing information associ-

ated with a range of addresses that matches a range of addresses associated with the ac-

quired ~~packet header~~ data;

means for determining if the operation code contained in a matching entry indi-

cates an insert data operation; and

7   means for (i) generating a leading bit mask that represents leading data contained

8   in the acquired <u>packet header</u> data, (ii) transferring the leading bit mask and the acquired

9   <u>packet header</u> data to the ~~destination~~<u>output buffer</u>, (iii) acquiring insert data, (iv) generat-

10   ing an insert data bit mask that represents the insert data, (v) transferring the insert data

11   bit mask and the insert data to the ~~destination~~<u>output buffer</u>, (vi) generating a lagging bit

12   mask that represents lagging data contained in the acquired <u>packet header</u> data, and (vii)

13   transferring the lagging bit mask and the acquired <u>packet header</u> data to the ~~destina-~~

14   ~~tion~~<u>output buffer</u>, if the operation code indicates an insert data operation.

1   28. (CURRENTLY AMENDED) A computer readable medium comprising computer

2   executable instructions for execution in a processor for:

3   reading one or more instructions indicating an operation to modify the <u>packet</u>

4   <u>header</u> data;

5   generating, in response to the one or more instructions, one or more commands

6   wherein each command is associated with the operation to modify the <u>packet header</u> data;

7   placing the one or more commands in a data structure;

8   holding the one or more commands and not performing the operations associated

9   with the one or more commands until initiation of a transfer of <u>packet header</u> data from

10   the source to the ~~destination~~<u>output buffer</u>; and

11   performing the operations associated with the one or more commands contained

12   in the data structure, to modify the <u>packet header</u> data as directed by the one or more

13   commands while the <u>packet header</u> data is being transferred from the source to the ~~desti-~~

14   ~~nation~~<u>output buffer</u>.

1   29. (CURRENTLY AMENDED) The computer readable medium as defined in claim 28

2   comprising computer executable instructions for execution in a processor for:

3   acquiring the <u>packet header</u> data from the source.

30. (CURRENTLY AMENDED) The computer readable medium as defined in claim 29 comprising computer executable instructions for execution in a processor for:

    generating a bit mask associated with the acquired packet header data; and

    transferring the bit mask and the acquired packet header data to the destina-tionoutput buffer.

31. (PREVIOUSLY PRESENTED) The computer readable medium as defined in claim 29 wherein the data structure comprises one or more entries wherein each entry is associated with a command and contains information associated with a range of addresses and an operation code that are associated with the command.

32. (CURRENTLY AMENDED) The computer readable medium as defined in claim 31 comprising computer executable instructions for execution in a processor for:

    searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data;

    if a matching entry is found, determining if an operation code contained in the matching entry indicates a delete data operation; and

    if so, generating a delete bit mask that represents data that is deleted in the acquired packet header data and transferring the delete bit mask and the acquired packet header data to the destinationoutput buffer.

33. (CURRENTLY AMENDED) The computer readable medium as defined in claim 31 comprising computer executable instructions for execution in a processor for:

    searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data;

    if a matching entry is found, determining if an operation code contained in a matching entry indicates an insert data operation; and if so,

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8   a) generating a leading bit mask that represents leading data contained in

9   the acquired packet header data,

10   b) transferring the leading bit mask and the acquired packet header data to

11   the ~~destination~~output buffer,

12   c) acquiring insert data,

13   d) generating an insert data bit mask that represents the insert data,

14   e) transferring the insert data bit mask and the insert data to the ~~destina-~~

15   ~~tion~~output buffer,

16   f) generating a lagging bit mask that represents lagging data contained in

17   the acquired packet header data, and

18   g) transferring the lagging bit mask and the acquired packet header data to

19   the ~~destination~~output buffer.

1   34. (CURRENTLY AMENDED) A method comprising:

2   reading one or more instructions, by a processor, indicating an operation is to be

3   performed on packet header data;

4   generating, in response to the one or more instructions, one or more commands

5   associated with the operation;

6   placing the one or more commands in a data structure;

7   initiating a transfer of the packet header data from a source to an ~~destination~~out-

8   put buffer;

9   searching the data structure for an entry containing information associated with a

10   range of addresses that matches a range of addresses associated with the packet header

11   data;

12   determining from the entry that the operation is an insert data operation; and

13   performing the insert data operation, by a device operating independently from

14   the processor, by determining a leading portion of the packet header data, transferring the

15 | leading portion of the <u>packet header</u> data to the ~~destination~~<u>output buffer</u>, acquiring insert

16 | data, transferring the insert data to the ~~destination~~<u>output buffer</u>, determining a lagging

17 | portion of the <u>packet header</u> data, and transferring the lagging portion of the <u>packet</u>

18 | <u>header</u> data to the ~~destination~~<u>output buffer</u>.